Before the
Federal Communications Commission
Washington, D.C. 20554

The Spectrum Policy Task Force Seeks Comment on Issues Relating to the Commission's Spectrum Policies	ET Docket No. 02-135

To: The Spectrum Policy Task Force

COMMENTS OF THE
SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association ("SIA")[1] hereby submits these comments pursuant to section 1.415 of the Commission's rules, 47 C.F.R. §1.415, and in response to the Federal Communications Commission's ("FCC" or "Commission") request for comments in the above referenced proceeding.

I. INTRODUCTION

SIA is a national trade association representing the leading U.S. satellite manufacturers, service providers, and launch service companies. SIA also recently began welcoming non-U.S. associate membership. SIA's member companies provide a broad range of products and services in the commercial satellite industry. Members include the recognized founders of commercial satellite communications, along with aspiring entrepreneurial companies seeking to provide new competitive services to consumers.

[1] SIA's members include: The Boeing Company; Globalstar, L.P.; Hughes Electronics Corp.; Intelsat; Lockheed Martin Corp.; Loral Space & Communications Ltd.; Mobile Satellite Ventures; PanAmSat Corporation; SES Americom; Teledesic Corporation; ICO Global Communications (Holdings) Limited.; TRW Inc., and associate member, Inmarsat.

SIA serves as an advocate for the commercial satellite industry on regulatory and policy issues. SIA's diverse membership permits the association to present a unified voice of the U.S. commercial satellite industry. SIA is therefore uniquely qualified to provide to the Commission the satellite industry's consensus position on the important matters raised in this proceeding.

II. MARKET-ORIENTED ALLOCATION AND ASSIGNMENT POLICIES

- **What specific policy and rule changes are needed to migrate from current spectrum allocations to more market-oriented allocations?**

The satellite industry already operates on, and distributes its spectrum on, a market-oriented basis. Satellite operators sell and lease transponder capacity to service providers and end users of all kinds pursuant to the Commission's longstanding transponder sales policy.[2] This policy has fostered the development of a secondary market in satellite spectrum and the efficient use of scarce orbital resources.

The secondary market in satellite spectrum supports a broad range of services (voice, video, data and internet) and transmission types (analog and digital, narrowband and wideband, global beams and spot beams). For example, billions of minutes of international telephone traffic is carried over satellites. Most broadcast and cable television content is sent via satellite to local affiliates and cable service providers. Broadcasters use satellite spectrum to provide instantaneous coverage of breaking news events, weather-related emergencies, entertainment, political and sporting events. Satellite spectrum is also used for vital public functions such as telemedicine and distance learning. Under the current regulatory regime, satellite services have become an integral part of the worldwide telecommunications infrastructure.

- **Are there circumstances under which adopting more market-oriented allocation and assignment policies would affect other important Commission objectives?**

A. Public Policy Obligations

The Public Notice and the task force process seem to be very focused on market oriented policies. While this is one element of the Commission's public interest consideration, the Commission's purpose is broader – it is: "to make available, so far as possible, to all the people of the United States, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges . . ." for a wide variety of uses, including national defense and public safety.[3] The Commission needs to keep this broader mandate in mind in reviewing spectrum allocation and assignment policies.

The FCC has, over the years, developed a range of policy tools intended to optimize spectrum use in the satellite industry in a manner that is flexible enough to permit reliance on market forces for selection of ultimate winners and losers. Among the policies the Commission has embraced in this pursuit are:

- **Encouraging better technology.** The FCC's rules have always encouraged, and in some cases required, the satellite industry to adopt more efficient technology and have thus expanded the usable capacity of the orbital arc many times over. As a result, more satellite systems have been accommodated and additional satellite capacity has become available within bands without additional spectrum allocations.

- **Expanding the spectrum available to satellite systems.** Historically, the FCC has supported the development of satellite service. The FCC and the ITU have

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[2] Domestic Fixed-Satellite Transponder Sales, *Memorandum Opinion, Order and Authorization*, 90 FCC 2d 1238 (1982), *aff'd sub nom.* World Communications, Inc. v. FCC, 735 F.2d 1465 (D.C. Cir. 1984), *modified*, Martin Marietta Communications Systems, *Memorandum Opinion and Order*, 60 RR 2d 799 (1986)

[3] 47 USC Section 151.

accommodated the industry's advances in satellite technology by opening up new bands and providing a forum for necessary studies regarding the ability of satellite networks and systems to share spectrum with other allocated and incumbent services. Initially, the use of satellites was focused on the C-band. With the demand for additional satellite services the Commission has successfully encouraged the development of the Ku-band, Ka-band, S-band and L-Band, with use of the V-Band in the near future.

- **Imposing due diligence milestone requirements on licensees and other policies to deter speculation and warehousing.** The FCC has several policies to deter speculation and ensure that satellite licenses are available to serious operators. For example, the imposition of milestone requirements is a proven means of dealing with those who would seek licenses simply in an effort to exploit future scarcity. Given the expense of satellite systems, milestone requirements, in and of themselves, impose substantial costs on anyone seeking a license purely for speculative purposes. At the same time, the FCC should exercise its considerable discretion to afford flexibility to licensees in fledgling services – especially in situations where providing some small measure of flexibility today would not delay or hinder a later applicant from securing its own assignment.

- **Authorizing multiple systems for a given service using a "build and coordinate" rule as was done in LEO MSS.** A complementary approach, which has been deemed appropriate for some kinds of satellite systems is to authorize systems using a "build and coordinate" rule - a form of closely monitored dynamic sharing. The heart of this approach is to license a set of operators and then establish deadlines for construction and launch. Each authorized operator must disclose its construction progress to the Commission, and all operators must cooperate to develop coordination procedures.

Similarly, all operators must employ technology that allows flexible use and sharing of the relevant band. It is emphasized that this is a unique solution for MSS but a good example of the use of a customized regulatory decision.

B. Harm Caused by International Satellite Spectrum Auctions

Congress recognized that auctioning spectrum for international or global satellite services would cause significant harm to the ability of the U.S. satellite industry to maintain and advance its commercial lead internationally. As a result, in 2000, Congress passed the Orbit Act[4], which states:

> ***"****Notwithstanding any other provision of law, the Commission shall not have the authority to assign by competitive bidding orbital locations or spectrum used for the provision of international or global satellite communications services. The President shall oppose in the International Telecommunication Union and in other bilateral and multilateral fora, any assignment by competitive bidding of orbital locations or spectrum used for the provision of such services.****[5]"***

Harms from Sequential Auctions – Congress recognized that if the United States were to hold spectrum auctions for international satellite systems, then other nations would follow the U.S. lead; particularly since foreign satellites would be subject to auctions in order to serve the U.S. This certainly has been the example in the commercial wireless arena, assisted in part by the U.S. efforts to export its auction policies. Sequential auctions would necessarily follow and would deter investment in satellite systems by raising both the cost of such systems but also by adding an additional level of uncertainty as to the overall licensing, and thus deployment, costs associated with the system. Satellite operations require securing a bundle of rights rather than a single right. Authorization of a spacecraft to orbit at a particular location, granted through

[4] Pub.L. 87-624, Title VI, sec. 647, as added Pub.L. 106-180, sec. 3, Mar. 17, 2000, 114 Stat. 57.

[5] Pub.L. 87-624, Title VI, sec. 647, as added Pub.L. 106-180, sec. 3, Mar. 17, 2000, 114 Stat. 57.

national licensing and ITU coordination of the space segment, are among those rights. This authorization is required to control interference and otherwise manage the orbit-spectrum resource. Rights to transmit signals to and receive signals from the satellite in each individual country reachable by the satellite (spectrum assignments, or landing rights) are separate. Procurement of such rights is an important aspect of the economics of a satellite business plan. There is a potential for individual countries to withhold such rights in demand for high auction fees through excessive reserve pricing via sequential auctions - i.e., separate financial negotiations with each country covered by the satellite "footprint." As a result, although sequential auctions would in and of themselves result in economic obstacles of such magnitude as to stifle an enterprise entirely, existing license fees committed in one jurisdiction would be jeopardized if later auctions elsewhere were 'lost'.

Output Restriction - The condition of mutual exclusivity is critical to any consideration of auctions. However, in the satellite industry, the FCC and industry, have been resourceful in promoting output expansion while also accommodating new entrants, thus avoiding this resolution mechanism. Worldwide satellite capacity has burgeoned during the past 30 years. Progress in satellite technology has allowed complex tradeoffs between power, bandwidth, service area and satellite spacing. To accommodate the U.S. share of this vast growth in satellite capacity, the FCC has historically employed two primary means to reconcile conflicting demands in the satellite industry.

First, it has encouraged the industry to adopt more efficient technology. Use of more efficient technology has, in turn, permitted rapid expansion of output and multiplied the number of satellite orbital locations as well.

The second means the Commission has utilized to enable the efficient provision of satellite services has been the timely release of additional spectrum resources for a variety of different categories of satellite services. The FCC has opened up portions of the Ku- and Ka-band for FSS, portions of the Ku-band for DBS, L-band and S-band for MSS, and the S-band for digital audio radio satellites (DARS). Moreover, the United States has sought to ensure that these domestic allocations were aligned with international allocations given the inherently international aspects of virtually all satellite service categories.

International Repercussions - Sequential auctions, discussed earlier, pose a significant threat to United States satellite interests with respect to the international community. In addition, auctions of the right to operate satellite systems by the United States government could elicit numerous other negative international repercussions.

First, auctions would disrupt existing dynamics of the international regulatory regime. Currently, numerous frequency bands allocated internationally for satellite services are subject to the ITU international coordination and registration process. If the United States were to start auctioning off access to these international allocations, it is likely to set a precedent for others to follow. Moreover any deviation from the current international system would inflict more harm on United States operators than others. As the leader in satellite technology and implementation of satellite systems – United States licensees have been prime beneficiaries under the current system.

Second, we would expect system operators to choose to operate under administrations that offer less onerous licensing mechanisms. There would be little incentive for a prospective satellite operator to seek an operating license from the United States if it could obtain an operating license significantly more cheaply from another country.

Third, we would expect auctions in the United States to change the incentives of individual foreign administrations. Currently, U.S. authorization of a satellite system that serves markets outside the United States does not deny the regulatory authority in those markets any revenue. If a system is registered with the ITU, then any other nation that tries to auction off the same slot (or the right to use that slot in their jurisdiction) will run into the ITU coordination requirements. With the advent of auctions, however, other nations may try to stake their claim to prospective auction revenues by claiming slots that U.S. systems need through "paper filings" that are never actually built.

Delay and Denial of Service - Auctions of licenses to provide international or global satellite services in the United States also create incentives that may harm consumers by delaying and denying service. Suppose sequential auctions do occur. What then is the decision process facing a system operator? How can it estimate the total costs of a project until landing-rights auctions have been conducted in all countries? If the economic feasibility of a project depends upon the service revenues in other countries, then a satellite operator must wait until all (or at least many) nations have completed their authorization process before the operator can safely forecast the business case. Clearly, five or fifteen nations cannot conduct their auctions as quickly as one nation. This inevitable delay will cause a delay in services, at the least; it could also harm the current US leadership in the satellite industry. Moreover, because it will be impossible to calculate the costs associated with these sequential auctions, a satellite operator will not be able to forecast the total system cost or the merits of a business case for the proposed system. This uncertainty may make it more difficult for an operator to obtain financing or it may result in cancellation of the venture entirely.

- **Should more spectrum be set aside for operating unlicensed devices? Should the kinds of permissible unlicensed operations be expanded? What changes, if any, should be made to the rules to accomplish this? Because of the commons aspects of unlicensed use, is there concern that, as congestion rises, spectrum may not be put to its highest valued use? If so, what policies might be considered to anticipate this problem?**

Extreme caution is warranted in any Commission consideration of a "set aside" of spectrum for unlicensed devices in bands that are used by satellite services. These bands are already heavily encumbered and are subject to extensive sharing between multiple satellite services (*e.g.*, between GSO and NGSO systems and between fixed satellite and mobile satellite systems), between satellite services and licensed terrestrial services (*e.g.*, between fixed satellite systems and terrestrial microwave systems in C-band and extended Ku-band, and between DBS systems and MVDDS systems in the 12.2-12.7 GHz band), and between satellite services and unlicensed terrestrial services (*e.g.*, between fixed satellite systems and unlicensed Part 15 and ultra wideband devices) [6].

If unlicensed users are added to satellite bands without adequate consideration, a community of users may develop that will make it difficult for the Commission to enforce policies that are required to protect satellite systems, service providers and the consumers of their services. It is essential that satellite operators and service-providers, who have invested billions of dollars in the deployment of satellite systems and consumer equipment and rely on them for numerous services, including critical infrastructure and national security services, receive adequate interference protection. History demonstrates that in this arena, an ounce of prevention is worth a ton of cure.

For example, when the Commission adopted standards for Part 15 unintentional radiators, it arguably exempted receivers tuning to frequencies above 960 MHz from the Part 15 emission

[6] Some of these sharing arrangements remain subject to reconsideration or review based on claims that they cause harmful interference to satellite services.

limits.[7] The radar detection industry took advantage of these circumstances by producing devices that emit at levels that are causing extensive interference to VSATs and other satellite systems operating in the Ku-band. The Commission is examining this interference problem in a pending rulemaking,[8] but no matter what action the Commission takes on a prospective basis, there is still a large installed base of existing radar detectors that can interfere with satellite operations. Accordingly, the Commission should not authorize additional operations on an unlicensed basis in bands used by satellite systems unless there is conclusive evidence, including valid test results, demonstrating that satellite services will be adequately protected.

III. INTERFERENCE PROTECTION

- **Are new definitions of "interference" and "harmful interference" needed? If so, how should these terms be defined?**

The definitions for "interference" and "harmful interference" have been established and agreed to within the ITU for some time. In addition, there are also established definitions for "permissible interference" and "accepted interference." Permissible interference is a level allowed under the Radio Regulations or Commission's Rules. The term, acceptable interference, is used in the coordination of frequency assignments between administrations and, in some cases, in the definition of limits to protect against unacceptable interference.

It is not clear what purpose would be served by redefining any of these terms. Instead the Commission should make clear the use of these terms in its regulations. Harmful interference is an extreme level of interference that is rarely seen when properly functioning radio equipment is used in a frequency band by services or systems that operate on a co-primary basis. At the same

[7] *See* 47 C.F.R. §§ 15.101(b); 15.109.
[8] Review of Part 15 and other Parts of the Commission's Rules, *Notice of Proposed Rulemaking and Order*, FCC 01-290, ¶¶ 10-14 (Oct. 15, 2001).

time, it is clear that just because interference between such services or systems in a band does not rise to the high level of "harmful interference" it cannot be reasonably concluded that the interference is subjectively acceptable or tolerable to the victim service or users.

As a result, the Commission's, and even the ITU's, attempts to quantify the level that constitutes harmful interference are really not a useful exercise. The key is to find ways to ensure that the level of interference between systems in the same service and between licensed systems in different co-primary services or between licensed and unlicensed services is not and will not be at a level that will result in the interruption or degradation of one of the services using the band. Therefore, the level of interference that is appropriate for allowance from one service into another is always less than harmful interference[9]. That is where the term acceptable interference should be used when quantifying the level of interference that one system is allowed to produce into another system, whether in the same service or in different services.

In the ITU, a system that is operating at the pre-determined "permissible" interference level is presumed to be causing a level of interference that other systems in the same service or systems in other services can tolerate. In situations where frequency sharing between systems is accomplished through coordination, the permissible level of interference is generally a trigger for coordination and a higher level of interference is often accepted in bilateral negotiations between affected administrations. For the Commission's purposes, the object of most spectrum sharing rulemaking proceedings – at least those not involving assessment of interference to a safety service – should be to identify the level of permissible interference. If interference management

[9] Given these circumstances, SIA is concerned that the Commission's application of a harmful interference standard to unlicensed Part 15 devices, *see, e.g.,* 47 C.F.R. § 15.5(b), may have the paradoxical effect of permitting these devices to cause a greater degree of interference than primary services that are subject to the permissible interference standard. SIA urges the Task Force to take this issue into account in its findings.

were left to operators, those operators would be coordinating among themselves to establish the acceptable (and conversely unacceptable) levels of interference.

As noted above, the terms, acceptable, permissible and harmful interference**,** are already internationally and domestically widely accepted. It would really serve no purpose and may actually lead to confusion, particularly in international situations**,** to attempt to redefine them**.** Therefore, the Commission should, when adopting sharing criteria, use the terms permissible or acceptable interference.

- **What is the impact, if any, of increased flexibility on how harmful interference should be defined and understood?**

As described above, it is important to understand that harmful interference is a level of interference that should not be allowed. It is even more important to understand that interference does not have to be at a level that is, by definition, "harmful" in order to be completely unacceptable as a functional matter to another co-frequency system or service. The Commission should strive to identify permissible interference levels in its rules, and to allow for identification of higher-than-permissible interference levels ("accepted levels") only in cases where coordination between users is envisioned.

Coordination leads to the most flexible use of the spectrum and the deployment of new technologies more expeditiously. For instance, in the case of Ku-band satellite systems, the Commission adopted flexible technical standards that allowed for transition to two-degree spacing of satellite systems, and also allowed operators to coordinate with each other in order to use different technical standards than those specified in the Commission rules. This flexibility has allowed the development of second and third generation satellite systems that use new technologies/parameters (e.g., higher power) to provide services to their customers. If the Commission had not allowed coordination to take place between operators, the Commission

rules would have had to be updated as technology advanced or the new technologies may not have been implemented. This would have taken time and slowed the level of innovation that could be achieved by operators engaged in direct consultations with one another. Moreover, as the technology evolves and new systems are deployed, there are still older systems that would obviously not have the new technologies. In these crossover cases, coordination allows the two operators the greatest flexibility to establish on an ad hoc basis the operational parameters that are acceptable for their systems. This is a particularly critical point for satellites, which cannot be retrofitted on orbit.

Also when defining new sharing rules for incumbent users, e.g. power limits, the Commission must take into account all or at least most of the parameters of the incumbent users – and define levels of interference that are acceptable to all. This could, however, lead to some systems, which may be more robust because of the type of traffic or other technical parameters, being overly protected and other systems barely protected. Therefore, the ability for users of the band to coordinate provides these users with the flexibility to operate with different, but mutually agreed, parameters. Operators can take into account their particular system characteristics and know what level of interference they can accept. Additionally, they can agree to more creative methods to share spectrum (e.g., limiting operation of certain transmissions to certain frequencies), an approach that would be very difficult, if not impossible for the Commission to codify, as it will vary on a case-by-case basis. This combination approach of defining some technical standards and allowing a degree of coordination is beneficial to all users of the band.

- **Are more explicit protections from harmful interference of incumbent users required?**

It is sound technical and economic policy to ensure that incumbent and future users in all services are protected from harmful interference and unacceptable interference from any new

services. In cases involving protection of incumbent safety services, more explicit protections from harmful interference may be appropriate at the outset (given the higher standard to which safety services are protected as compared with other radiocommunication services).

- **Does defining power limits and other measures in the Commission's rules designed to protect against harmful interference affect innovation?**

Defining power limits without the ability to coordinate will adversely affect technological innovation. The implementation of new technologies is usually done in a piecemeal fashion. In other words, not all operators will implement the same technologies at the same time. The implementation of new technologies is usually determined more by economics than anything else. For instance, terrestrial systems often implement new technologies that result in greater capacity in urban areas where they may not in rural areas. With respect to GSO satellites whose operational lifetime are typically 15 years, there will always be newer satellites operating in the same band with older satellites so the technologies on these satellites will be different. That is why the Commission should ensure flexibility in their rules regarding coordination between satellite operators.

As a practical matter, any power limit has at least some tendency to freeze or stifle innovation on both sides. For the "protected" service, there is no incentive to improve robustness or efficiency once a hard limit on the power it has to tolerate is established. For the protecting service, there is no incentive to improve the performance of equipment that is meeting the hard limits – a situation that could affect the extent to which other systems in the protecting service can be accommodated, among other things. While useful for defining protection in situations where it is essential, power limits should not be an approach of first resort in the effort to improve efficiency in the use of spectrum.

- **As technology advances, should what the Commission defines as unacceptable or "harmful" interference correspondingly change in the future? How should rights and obligations of spectrum users be defined to facilitate such changes as well as innovation?**

It is important for the Commission to update its rules in a timely fashion. However, the Commission is not in a position to study/adopt new rules each time a new technology is introduced in the marketplace. Moreover, with a Commission established flexible mechanism already in place for coordinating within the general interference standards, such as two-degree spacing, there is no need for the FCC to expend any of its own scarce resources on such a task. Clearly, if the FCC rules were based on technologies/assumptions that are in large part no longer valid for a certain service, the FCC should initiate a rulemaking proceeding to update the necessary technical parameters. It should be noted that advances in technology may lead to more robust or more sensitive systems.

- **In lieu of, or to complement, technical rules related to interference, are there processes that the Commission could consider that would allow private parties to more expeditiously resolve interference issues and disputes, for example, through negotiated agreements, mediation, arbitration or case-by-case adjudication?**

There is already a longstanding practice in the satellite industry of resolving interference issues through operator-to-operator coordination. Within the technical constraints established by the Commission's rules and ITU requirements, coordination between satellite operators appears to be the best means of resolving interference issues. These agreements are confidential between the parties, which allows more flexibility in accommodating specific cases of interference without concern that doing so will compromise interests in other coordination situations or set a broad precedent.

IV. SPECTRAL EFFICIENCY

- **Should the Commission consider ways to quantify or benchmark spectral efficiency in a way that permits fair and meaningful comparisons of different radio services, and, if so, how would such comparisons be used in formulating spectrum policy?**

The Commission authorizes a wide variety of satellite services. Generally, each of them has a different frequency band and bandwidth, technical characteristics and constraints, as does the same service in different frequency bands (e.g., the FSS at C-band is different in character and use than the FSS at Ka-band). They may be narrowband or wideband, one-way or two-way, data or voice, fixed or mobile. User terminals range from handheld, laptop or suitcase size to small dish (~1/2m) and VSAT, up to large dish (up to 12m and above). There is no way to effectively compare the spectrum efficiency of these very different satellite applications and services.

Nor would it be appropriate to compare spectrum efficiency of a satellite service with a terrestrial counterpart if one exists because there are other important components of the public benefit of satellite services, for example, their ubiquity and capacity to provide communications to widely separated populations. In many thinly populated or very remote areas, there are no alternatives to satellite services and the availability of those satellite services is critical to the Commission mandate to promote service to all of the people of the United States. However, without success in the densely populated areas, from a spectrum access perspective, satellite systems may not be economically viable.

Satellite system operators are already highly incentivized to use spectrum efficiently. There are limitations on the number of orbital slots as well as relatively few satellite bands available for any satellite service, and those bands are extensively regulated both by the Commission and also by provisions in the ITU Radio Regulations. Within those constraints, and

given the high cost and long lead-time of satellite systems, operators go to great efforts to maximize the efficiency of their systems. As a practical matter, the Commission staff would not want to and probably could not within its resource constraints engage in meaningful evaluation of satellite system efficiency measures. We urge the task force to recognize that competitive and economic forces perform this function adequately now for the satellite services.

- **How, if at all, can the Commission provide incentives for operators to use spectrum efficiently? For example, how could the implementation of fees (e.g., on the basis of Hz per square mile per minute or Hz per population coverage) or receiver standards affect spectrum efficiencies?**

We also note the examples of additional incentives for efficiency in question 21, such as increased fees, would have the adverse result of diminishing initiation of satellite services to sparsely populated areas by adding cost to such systems without any additional value or capability. That result would be exactly the opposite of the Commission's policy objective to broaden the range of services available in remote areas of the country.

V. PUBLIC SAFETY COMMUNICATIONS

- **What mechanisms can be developed to ensure the availability of dependable, interoperable and cost-efficient radio-based and other communications services among local and state public safety and federal government agencies in their use of spectrum for public safety, law enforcement, homeland security and critical infrastructure protection?**

The Commission has historically taken steps to ensure that spectrum is available for public safety functions both by allocating spectrum specifically for licensing to public safety agencies and by allocating spectrum for a variety of commercial radio services that can be accessed by public safety organizations. This diversity in licensing of radio services available for public safety use guards against all communications channels being disrupted at the same time.

For example, FSS and MSS systems proved critical for the relief efforts following the terrorist attacks on September 11, 2001. Local terrestrial-based communications systems were overwhelmed following the attacks in New York City and the Washington Metropolitan area. Several satellite systems donated equipment and airtime for the rescue and recovery efforts.

Several features of satellite systems offer advantages for public safety, law enforcement and emergency response organizations. First, each satellite system provides communications through its satellites and a few gateway earth stations. The satellites themselves are less vulnerable to disruption from the earth than terrestrial networks, and there are generally redundancies in the earth station network. Accordingly, satellite systems offer a high degree of reliability, which is needed for public safety communications.

Second, satellite systems offer nationwide service, throughout the United States. Therefore, satellite systems make communications available in emergency situations where terrestrial phone service is not available, either because there is no phone service at the site of the emergency or because the impact of the emergency disrupted existing terrestrial phone service.

Third, MSS phones, for example, provide a mobile phone number that allows public safety staff to reach personnel in the field. Even if terrestrial services are operational, an office may not know the location or numbers of phones near on-site personnel, nor whether the site of the emergency will be within reach of terrestrial networks or emergency dispatch systems. Such concerns do not apply to MSS systems.

Fourth, MSS handsets or portable devices/phones also offer universality for public safety organizations that may not use a single common terrestrial communication or dispatch system. If multiple public safety organizations respond to the same emergency site, satellite phones can overcome any differences in the various units' communications capabilities.

Fifth, commercial satellite systems offer methods to extend and complement communications services in rural, underserved and un-served areas. For example, wireline and wireless services do not reach vessels at sea. But, MSS systems can provide maritime communications with the same networks that cover the continental United States. With FSS or MSS capability, vessels can have one or more unique telephone numbers at which they can be contacted by persons on land and persons on other ships. The same number can be used to reach the vessel whether it is in the North Atlantic or the Gulf of Mexico. In an emergency, calls can be made from the vessel directly to the nearest distress and rescue agency. Furthermore, FSS systems enable Internet connections in rural and remote areas of the US.

It is not always possible to predict why or when a certain form of communications service will be needed. It is possible, however, to provide and plan for diversity in radio services. Nonetheless, the Commission should continue to provide adequate spectrum allocations for licensing for specific public safety uses.

VI. INTERNATIONAL ISSUES

- **What role should international/global considerations play in spectrum policy in the United States? And conversely, how should US preparation for regional and international meetings on spectrum policy take into account domestic spectrum policy decisions?**

As the Commission is aware, the vast majority of satellite services play an important role in international communications. Operators are subject to the Commission's domestic rules, ITU regulations, and the domestic regulatory provisions of other countries in which they seek to provide service.

Efforts by the Commission to increase the speed and efficiency of ITU decision-making are important and should be a priority objective for the Commission. To achieve this and other

U.S. objectives at the ITU and other relevant multilateral fora, the Commission should continue its leadership role in developing U.S. industry views and inputs.

The United States should not take any domestic spectrum policy action without having at least a basic understanding of the potential international ramifications of its action. This is especially true with respect to the strategic and substantive implications of overall U.S. objections at a World Radiocommunication Conference. At multilateral conferences, the United States should consider how to advance its domestic policy objectives, while at the same time, use these fora as an opportunity to test domestic policy initiatives.

One issue the SIA urges the Spectrum Policy Task Force to consider is that the ITU allocates bands to services far in advance of the use of these bands by operators. For instance the ITU has allocations in bands between 100 and 275 GHz, and has unallocated spectrum from 275-1000 GHz. Clearly, from a commercial service perspective, there are no plans to use these bands in the near future. The firm allocation of spectrum, if done prematurely and not on the basis of technical study and the evaluation of current and prospective requirements, absolutely impacts the future ability of some services to use that spectrum, as well as the efficiency of the use to which services allocated in the bands put the spectrum. This reality can shift the focus in a band from one of optimizing the use of spectrum to one of making sure that some use is identified so as to avoid permanently losing all access to the band

Under Agenda Item 2.3, WRC-03 is to consider allocations above 275 GHz. The United States should be involved in this development and ensure a proper balance of allocations for all services capable or potentially capable of using spectrum in that range.

- **Are there ways in which the Commission can or should improve the coordination process with Canada and Mexico? If so, how?**

The United States has, established very good working relationships with both of its neighbors. The process generally works well, and good lines of communication exist. In fact, the relationship and cooperative spirit between the United States and Canada in particular should serve as a model for the pursuit of bilateral arrangements between the United States and countries in other parts of our region, or with countries in other regions.

VII. CONCLUSION

It is crucial that an analysis of improved use of spectrum begins with acknowledgement that the Commission is tasked with achieving the best balance of service to the public. That inevitably leads to many different policy situations and the practical impossibility of using a single approach for all of them. We emphasize this because satellite communications issues are quite unique in the range of Commission issues. Techniques that make sense for terrestrial wireless radio services are not necessarily suitable for satellite services. Auctions are a specific case where the differences dictate different allocation policies**.**

Respectfully submitted,

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